hints of the attachment of the ancients to numbers in his third book, with reference to the dimensions of temples. The investigation of this subject might be attended with curious results. The frequent dimension 358, by the addition of the stylobate, or by the local variation of the foot may easily be supposed to refer to the number of days in the solar year. In the Temple of the Sun at Palmyra, the portico has 12 columns; these added to the columns in the temple, make 32; the whole number of columns in the surrounding peribolus is 364. Wren seems to have had reference to this idea in this height of St. Paul's.

"The sections of Ægina, the Parthenon, and the temple at Pœstum, exhibit the ancient arrangement of an interior divided into a nave and two aisles, by two rows of columns in double heights; those of Venus, and Rome, and Balbec, exhibit the Roman form, namely, a vast vault,—in those instances, upwards of sixty feet diameter in masonry. The occupation of the whole of these interiors by the idol, their employment as a vast niche to receive the god (in ivory and gold, at Olympia and Athens), had something of monstrous, but magnificent; and invested with the art of Phidias, we may understand how even the rough soldier, Paulus Æmilius, might be moved even to tears, as we are told, in the presence of the beauty and majesty of the godhead, so figured by that great master."

Mr. Cockerell next proceeds to describe the transition which took place in the temple structures at and about the time of Constantine (the fourth century of our era), from the simple basilica to the cruciform, the sign of Christian conquest, concerning which and other churches than that of Constantine the architect may consult with profit what is handed down to us by Eusebius, bishop of Cæsarea.

It was said that 1800 churches and religious structures were built during the reigns of Constantine and Justinian: those of the former were in the basilica form, which is liable to decay; those of the latter, to which the ritual and other important considerations gave a new form, resembled the Greek cross of equal lengths. The transept was covered with a large dome, and the ends of the cross with minor ones, forming a group highly favourable to architectural effect. This form, executed in Santa Sophia, became the wonder of the world, and the dome also, 120 feet in diameter, exceeded any executed since the Pantheon at Rome."

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"The dome, which had become the distinguishing feature of the Eastern church, penetrated into Italy, under the exarchate at Ravenna, in the church of Santa Vitali, 510 A.D.; and again at Venice, in St. Mark's, built by a Greek architect (976—1071). Until the eleventh century, the dome formed no part of the western church, except in those instances: it was then that the Pisans, the richest and most commercial people of Italy, began their great church (1063), and adorned the transept with this new feature."

And so through the rivalry of nations this new feature sprang into distinctiveness, under the auspices of Brunelleschi at Florence; one hundred years later, the dome of St. Peter's, by Michael Angelo; and then the domes of the Invalides, Val de Grace, at Paris; and St. Paul's in London. We come to the decline and wearing out in the dome of the Church of St. Geneviève, which, like the successor of a noble but worn-out race, exhibits all that meagreness and debility which precedes its extinction.

"With reference to the gradual verticality which the sections of this series of ancient and modern temples assumed, we might say, that the earliest were of the earth earthy, and the latter as sublime as the religion for which they were designed. Thus, the height of the Pantheon, at Rome, was equal to its diameter, or as 10 to 10; that of Venus, at Rome, was as 12½ to 10; that of the Baths of Caracalla, as 14 to 10; of St. Peter's at Rome, as 17 to 10; of St. Paul's, London, 20 to 10, as also of Lincoln; and that of Cologne was as 34 to 10.

"The last great temple of Christendom was the Magdalene Church at Paris; it is 325 feet long by 136 feet wide and 120 feet high, and equalled the smaller temple of Balbec. It was the work of more than half a century. In England, great activity had been used in church-building during the last twenty-five years, but the warmest admirers of those zealous efforts could never pretend that any regulated architectural spirit has directed those works. No church of a monumental character had been attempted. The ascendency of the high church party is, however, favourable to our art, and it is not unlikely that, under good direction, it may flourish in a few years. But there is much pedantry abroad, and an absence of all originality, and intrinsic character to the taste of the day, which leads to the Roman Catholic form, the basilica, suited to a demonstrative form of worship rather than auditorium required by our ritual. Veneration for antiquity is to be respected and encouraged, but its transition to superstition is easy.

"The designs of 1640 have left us models, erected under the direction of Sir C. Wren, which have not been surpassed. Seven of the city churches were exhibited (measured by the Professor), which would be found as remarkable for their adaptation to our form of worship—offering the largest area, with the smallest obstruction to the sight and hearing—as they were ingenious, and admirable in taste and structure."

There we have let the Professor speak out for himself, braving all the terrors of the inquisition, which his heterodoxy is calculated to bring in fierce impendings over his head. His second lecture thus concluding, and with a well-merited eulogium on the genius of Wren, will, we know, excite the bile of the unreflecting, who are run through a fashion or a rage, how little of a genuine principle of taste may really prevail—how, in fact, the thousands of blind worshippers of the Greek this day, and the Gothic next, may not be and are the inconsistent, whose *principle is imitation*, when what is required is *the imitation of a principle*.

ANGLO-NORMAN ARCHITECTS.

Contemporary with the Norman conquest lived Gundulph, one of the churchmen architects of that era, and we find that their practice embraced the planning and execution of both ecclesiastical and military structures.

Gundulph, Bishop of Rochester, a Norman by birth, was consecrated to that see by Archbishop Lanfranc, March 19, 1077, an appointment highly gratifying to the Conqueror, to whom he was surveyor and architect during the whole reign of that monarch, and whose attachment was memorably evinced by a bequest to the Church of Rochester, of the (comparatively) large sum of one hundred pounds, and *his royal robe*.

The great works authenticated as those of this prelate are, the great white square tower, in the Tower of London, the Cathedral of Rochester, and the greater part of the tower of the castle there. It is also probable that he built that portion of Norwich Castle which is in the Norman style, or at least commenced those alterations consequent upon the accession of the Norman dynasty. He built also the Castle of Haddenham, the Hospital of St. Bartholomew, Chatham, and a nunnery at Malling, in Kent.

Gundulph was the most celebrated improver of his time, previous to which the Norman buildings were remarkable only for the rough and massive outline they presented. He originated the embellished style, the workmanship of which went on improving in every province in the kingdom until the middle of the twelfth century; and so perfectly was his merit acknowledged, that it was emphatically termed "GUNDULPH'S ARCHITECTURE."

This period in the history of architecture is extremely interesting; it is in fact one of the *transition periods*, which we shall have occasion to illustrate by examples and diagrams. The western front of Rochester Cathedral, upon which Bishop Gundulph bestowed the principal evidences of his conceptions and skill, is eighty-one feet in breadth, the great porch being charged with the most elaborate ornament, in statuary and foliage, carved upon the columns, capitals, and members of the receding arches of which the porch is composed.

Gundulph occupied the see of Rochester upwards of thirty years, during the reigns of William I., William II., and part of the reign of Henry I. He died, March 7th, 1107, and was buried before the high altar of his cathedral. Of this prelate it may be said that he was one of the most indefatigable cultivators of his art, and at the same time the most eminent of the Norman architects. Actuated by the sentiment that had prevailed in all time, of devoting the utmost energies of genius to the adornment of the TEMPLE, he so devoted those he possessed, and the evidences of his zeal survive a period of more than seven centuries. He bequeathed his style to his pupil, Ernulph, Abbot of Peterborough, by whom it was actively prosecuted, and specimens of whose skill remain to be pointed out in Rochester, Canterbury, and Peterborough. Ernulph, in 1115, succeeded Rudolph in the see of Rochester, and thus attained to the very province, and a contemplation of the works of his great master. This prelate died March 19, 1124, at the advanced age of eighty-four, after a very active and useful life.

METROPOLITAN IMPROVEMENTS.

CONTENTS OF THE SEWERS AS MANURE—CEMETERIES.

To the Editor of The Builder.

DEAR SIR.—As you have noticed our proposal for putting down a strip of pavement along the footpaths all round London, perhaps you may think the following suggestions deserving a place in your excellent Journal. They were made in consequences of some observations made by Sir James Graham in the House of Commons, signifying that Government were about to direct their attention to the subject of public improvement.

1. Would it not contribute to health and decency to have public places of convenience, such as they have in most towns of France, all over London and the suburbs for several miles round? There might be some exclusively for women, as at Havre, for example. An old man might be placed as a keeper in the one case, and an old woman in the other, and the parishes might furnish these persons from the workhouses.

2. Might not the whole of the aqueous parts of the common sewers be returned to the country as manure, in mains of pipes, in the same manner as the water is brought in, and the solid part sent out in cakes, like oil cake? This might be done by intercepting the matter contained in the sewers at different points, separating the solid from the fluid parts by filtration and compression, and forcing off the latter along cast-iron main pipes, by steam, or by previously forcing it to the summit of a tower. From the mains of liquid manure, conducted along all the principal roads, farmers and market-gardeners might be supplied with the liquid, exactly as houses are at present with pure water.

Viewing this mode of getting rid of the water of the sewers as the converse of the mode of introducing clear water, all the requisite details for carrying it into execution will readily occur to any practical person. It might be tried at first on a limited scale, say along the Hammersmith-road, as far as Hounslow, or Slough.

3. Should not small houses for the poor, and the direction of all streets of new houses, whether with or without yards or gardens, be placed as much as possible in such a direction (that is N.E. and S.W., or S.E. and N.W.), as the sun might shine on every side of the houses or houses every day in the year when he appears? This would contribute greatly to the dryness of the outside walls and yards of such houses, and consequently to the warmth and salubrity of the inhabitants.—See Sanitary Report for 1842, p. 396.

4. With respect to cemeteries, whether in London or the suburbs, would not a law enacting as follows, answer every purpose of Mr. Markinnon's bill? That no grave should be made except on ground that never was opened before; that when only one coffin was placed in a grave, it should not be less than six feet below the surface; that when more than one coffin was to be contained in the same grave, there should not be less than a depth of six feet between them, unless both coffins were deposited on the same day; that all burying in vaults, catacombs, and brick graves be discontinued; and that no new burial grounds be formed within two miles of St. Paul's. Such a law would at once prevent interments from being made in most of the London burial grounds, while it would admit of all the unoccupied ground being used, and thus commit no injustice to those who have recently enlarged their burial grounds; it would at the same time check the disgusting and dangerous practice of burying ten or twelve bodies close upon one another, in one grave, now practised both in the old churchyards and in the new cemeteries.

Hoping that you may be able to find room for these suggestions, I remain, dear Sir,

Bayswater, Your most obedient servant,
Feby 28, 1843. J. C. LONDON.

METROPOLITAN IMPROVEMENTS.—Active measures have been already commenced in the way of pulling down the buildings in the line of the new street from Oxford-street to Holborn, through St. Giles's, so that we may very shortly expect to be gratified by a clear view of the line of communication, and the avoidance of the wretched, narrow, and crooked winding round by the Church of St. Giles's, Bloomsbury.